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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/738,362	12/15/2000	Minoru Noguchi	10936-57	9812

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EXAMINER

LISH, PETER J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 06/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/738,362

Applicant(s)

NOGUCHI ET AL.

Examiner

Peter J Lish

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-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 5 and 7-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5, and 7-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 102***

Claims 1, 5, 7-14, and 16-28 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okuyama et al. (USPN 5,956,225) with reference to Setoyama et al. ("Simulation Study on the Relationship Between...").

Okuyama et al. teaches an activated carbon for electric double layer capacitor, having a specific surface area as determined from the nitrogen adsorption test is not less than 1000 m<sup>2</sup>/g and preferably from 1000 – 2500 m<sup>2</sup>/g (column 5, lines 33-37).

Okuyama et al. does not explicitly teach the rate of filling swing of the carbon material. The activated carbon of Okuyama contains many pores with a pore diameter of not less than 20 Angstroms (2.0 nm) in the pore distribution determined from the nitrogen adsorption isotherm. The ratio of pore volume with a diameter of not less than 20 Angstroms to total pore volume is greater than 0.45, and reaches as high as 0.75 in Example 1. The relationship of pore size to filling swing is known by reference to the teaching of Setoyama, which states that pores of width higher than 1.4 nm show no filling swing, while pores of width 1.2 - 1.3 nm show only very slight filling swing (see figure 6). Therefore, it is expected that the activated carbon material of Okuyama et al., having a high percentage of pores which show zero filling swing (at least

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between 45 and 75%), has a low rate of filling swing, between 10 and 25 cm<sup>3</sup>/g STP, more specifically between 15 and 23 cm<sup>3</sup>/g STP.

Okuyama does not explicitly teach the oxygen content of the activated carbon. It is expected that the activated carbon of Okuyama has an oxygen content of at most 3%, because no difference is seen between the process of Okuyama and that of the process of the instantly claimed invention which would result in the material of Okuyama having a higher oxygen content. Okuyama teaches that the carbon is activated, heating in nitrogen atmosphere to about 650 °C, and water washed and dried. Example 2-4 of the instant application teaches a method whereby the carbon is activated, washed and dried (if activated by chemical means), and heated in a nitrogen atmosphere to about 700 °C.

Additionally, if there is a particular step which provides for the low oxygen content of the activated carbon, it would appear that this step is heating in a nitrogen atmosphere, a step which is taught by Okuyama et al. Example 2 of the instant application differs from Example 1 only in this heating step, yet the oxygen content of the activated carbon of Example 2 is 1.3% as compared to 4.1% for the activated carbon of Example 1.

Regarding claims 8-10, no difference is seen between the activated carbon material of Okuyama et al. and that of the instantly claimed invention. The method of activation does not make the activated carbon material of the present invention distinguishable over the activated carbon material of Okuyama et al. Additionally, regarding claim 8, Okuyama et al. teach a method of carbonizing and activating a carbonaceous raw material by a steam (gas) activating method and an alkali (chemical) activating method. Regarding claim 10, the carbonaceous raw

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material of Okuyama is one of coal, coconut shell, sawdust, resin, coal coke, coal tar, petroleum pitch, carbon fiber, carbon black, and the like (column 4, lines 21-32).

Regarding claims 11 and 12, the activated carbon of Okuyama et al. is mixed with a binder, such as polyethylene fluoride resin, and an electroconductive material, such as carbon black, and molded into an electrode form (column 5, lines 50-65).

Regarding claims 13-14 and 16-18, two activated carbon electrodes of Okuyama et al. are held between two collector plates in an electrolyte solution-containing case, and are separated by a separator to form an electric double layer capacitor. While the results of a specific durability test are not explicitly taught by Okuyama et al., it is expected that the results are identical to that of the instantly claimed invention, as no difference is seen between the electric double layer capacitor of Okuyama and that of the instantly claimed invention.

### ***Claim Rejections - 35 USC § 103***

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okuyama et al. as applied to claims 1, 11, and 13 above, and further in view of Hirahara et al. (USPN 6,094,338).

Okuyama is applied above. Okuyama does not explicitly teach that the electrolyte is non-aqueous. Hirahara teaches that in order to obtain a capacitor having a large applicable voltage and a large energy density, the use of a non-aqueous electrolyte is preferred (column 11, lines 40-43). It therefore would have been obvious to one of ordinary skill at the time of invention to use a non-aqueous electrolyte solution in the capacitor of Okuyama, as taught by Hirahara.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 703-308-1772. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-305-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

PL  
June 17, 2003



**STUART L. HENDRICKSON  
PRIMARY EXAMINER**